

ABSTRACT

5 “CORELESS PRINTED-CIRCUIT-BOARD (PCB)
 TRANSFORMERS AND OPERATING TECHNIQUES THEREFOR”

10 Optimal operating techniques are disclosed for using coreless printed-circuit-board
 (PCB) transformers under (1) minimum input power conditions and (2) maximum energy
 efficiency conditions. The coreless PCB transformers should be operated at or near the
 ‘maximum impedance frequency’ (MIF) in order to reduce input power requirement. For
 maximum energy efficiency, the transformers should be at or near the “maximum
 efficiency frequency” (MEF) which is below the MIF. The operating principle has been
 confirmed by measurement and simulation. The proposed operating techniques can be
15 applied to coreless PCB transformers in many circuits that have to meet stringent height
 requirements, for example to isolate the gates of power MOSFET and IGBT devices from
 the input power supply.